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U.S. Bureau of Agricultural Economics
Title:
The edible fat problem in Germany
Place:
Washington, D.C.
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U. S. Bureau of agricultural economics. Foreign agricultural service.
The edible fat problem in Germany, by H. E. Reed. Washington, 1934.
17 p. tables.

1. Oil industries - Germany. I. Reed, H E jt. au.

RESTRICTIONS ON USE:

## TECHNICAL MICROFORM DATA

FILM SIZE: 35mm REDUCTION RATIO: 16X IMAGE PLACEMENT: IA (IIA) IB IIB

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# THE EDIBLE FAT PROBLEM
in
# G E R M A N Y

by

H. E. Reed,
Livestock and Meat Specialist in Europe

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Washington, D. C.
June 1934

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JUN 9 1952 BB

# THE EDIBLE FAT PROBLEM IN GERMANY a/

## Summary

Germany is making an effort to become more self-sufficient with respect to edible fats. Recent measures calculated to curtail imports of lard and other animal and vegetable fats are major phases of a policy suggested by both economic and political considerations, which affect also imports of cotton, wool and other agricultural products. Germany is more nearly self-sufficient in butter than in any other edible fat. Increased butter production to the degree of replacing other fats, however, appears unlikely under present conditions. In vegetable oil production from domestic materials an important increase could be made only at the expense of grain production. An increased lard output, therefore, appears to offer the most promising results. The neutral lard production program now under way is the government's method of increasing domestic fat supplies, while also attempting to improve the economic position of German hog producers.

Increased lard production in Germany normally involves an increase in the production of pork, the supply of which is usually close to requirements. But a method has been developed in Germany whereby an increased yield of lard per hog can be obtained. To prevent a material decline in hog and pork prices, and to allow the use of this relatively expensive fat extraction process, it has been found necessary to support the new neutral lard plan by a government subsidy. As a result, the neutral lard now being produced is too expensive to be used as lard. It must be mixed with a cheaper fat to bring the retail price within reach of most consumers. Oleomargarine is now the chief medium of getting neutral lard into consumption, but it would appear that more domestic neutral lard could be utilized if larger quantities of the cheaper imported fats were

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a/ Report by H. E. Reed, Meat Specialist in Europe for the Foreign Agricultural Service, with the cooperation of D. F. Christy, Assistant Agricultural Attache at Berlin. Prepared for publication by John L. Stewart, Associate Agricultural Economist. Currency conversions made at current rate of exchange.

available for mixing. The German lard import business, of which the United States normally supplies about 80 to 85 percent, has been placed under the control of an official monopoly. That body has announced the curtailment of monthly imports to figures representing not over 40 percent of the average amounts imported in the corresponding months of the years 1931-1933. Definite information is lacking concerning current volumes allowed entry. It is evident however, that the current policy with respect to neutral lard contemplates definitely reduced imports.

Complete self-sufficiency in fats for Germany appears virtually impossible for the near future in view of the lines along which the agriculture of the country is now organized. For the more distant future, such self-sufficiency is improbable, for reasons which will be developed in the course of this report. Recent statements by German leaders have indicated a recognition of the doubtful position of the self-sufficiency program for fats. At present, powerful influences are at work to reduce imports into Germany wherever possible, the objective being to improve the heavily unfavorable trade balance. Fundamentally, however, German economy is built upon the industrial output of the country rather than upon its agriculture, with the industrial organization depending to a considerable degree upon foreign markets. An expansion of the export trade in manufactures, therefore, might well be expected to result in relaxed import restrictions for fats as well as for industrial raw materials.

## The German supplies of fats other than lard

Germany has been the second largest export market for American lard. The future volume of that business will be influenced by the success attending the current efforts to increase production in Germany. Control measures taken to date apparently are largely experimental and subject to revision to meet current developments. It appears to be accepted by the German authorities, however, that little can be done in fields other than hogs and lard. Brief statements on the conditions surrounding other forms of fat supply appear below.



### Butter

Butter is the most important domestic fat in Germany as regards both quantity and value. Domestic butter production in 1933 was at prewar levels. With the reduced consumption and higher prices of last year and so far this year, domestic production supplies about 90 percent of the butter consumed in Germany. Aids to the dairy industry have taken the form of import contingents, higher duties, controlled margarine production, and finally the placing of the whole butter trade under the fat monopoly. The immediate effect of these measures was a rise in the domestic price of butter, which undoubtedly stimulated production. Fluid milk consumption declined during the depression period, making available larger quantities for butter manufacture.

Materially larger butter production is possible, but unlikely. In the first place, present consumer buying power is so reduced as to appear unable to absorb an increased output at prices profitable to the producer. That fact halted the price advance incidental to the control measures mentioned above. As prices advanced demand shifted to cheaper fats. Effective May 1, butter prices were reduced by decree by 5.00 marks per 50 kilos (1.72 cents per pound)

In the second place, an increase in butter production through improved feeding practices would involve greater use of nitrogenous feeds. The domestic production of such feeds is small and imports are restricted. Milk yields are already high in the leading dairy sections and increasing production without a further rise in butter prices would be likely to result in diminishing returns. In other sections production might be increased, but the feed situation and farming methods make an appreciable increase of butter production improbable. Experiments with a sweet variety of lupine have been fairly successful, but at present the seed is scarce and expensive. Thirdly, an increase in the near future through greater numbers of cattle is not likely. Cattle numbers are almost at prewar levels, and present feed production and available pastures will not support further appreciable increases. It appears, therefore, that butter production could be increased sufficiently to meet present consumption, but it is doubtful if normal consumption could be met in the near future. Increasing production to such an extent that butter could be used to replace other fats seems out of the question for the present.

### Vegetable oils

Attempts to increase domestic production of vegetable oils have been made by subsidizing rape and linseed production. The acreage devoted to those crops has declined steadily during the last fifty years and a large percentage increase resulted from the subsidy. The total quantity produced, however, is not of importance. An increase in vegetable oil production in Germany is limited by a lack of suitable lands and the small number of oil-bearing plants which are adapted to German conditions. An increase could be made only at the expense of grain production. It appears also that the import trade in such products is to be further reduced. Beginning June 1, such imports were provisionally prohibited except for copra. In the future, the government intends to receive supplies of these products from countries agreeing to take an equal value of German goods.

Hungary and other Danubian countries have been under such consideration. Aggregate future supplies from such sources, however, are problematical, and unlikely to be very extensive.

Marine oils

Germany has been the leading whale oil importing country in recent years, its utilization in oleomargarine having increased up to 1933. In 1932, whale oil constituted about 36 percent of the fats utilized by German margarine makers. Margarine production, however, has been cut 40 percent under the current domestic fat program. Whale oil utilization in Germany has been confined largely to margarine production. Suggestions for the wider use of whale and other marine oils in edible products have been accompanied by proposals to expand the German activities in whaling and related activities. So far, however, no significant developments have materialized.

## Objectives and operation of the neutral lard plan

The foregoing comments suggest that hogs and lard represent the most practicable source of increased fat production in Germany. Fats are regarded as the country's most important food problem. There is a high consumption rate and heretofore over half of the supplies have been imported. Imports have had a depressing effect in earlier years on prices of domestic fats, but this influence has been largely removed in the past year by restrictions on imports, higher tariffs, equalization fees and the creation of the fat monopoly. The objectives of the neutral lard plan are (a) to aid hog and feed producers through higher hog prices, and (b) to increase domestic fat production without creating an unmarketable surplus of pork, by fattening hogs to heavier weights.

Neutral lard producers pay a supporting price for fat hogs weighing in excess of 300 pounds, and also for fat from other hogs. By this procedure, the cost of neutral lard is made so high that a subsidy is required, the necessary funds being obtained through a consumption tax on other edible fats. To place the new product within reach of consumers, the makers of oleomargarine are obliged to turn out a product of which 15 percent is neutral lard. The supporting price for 300-pounds fat hogs is R.M. 0.50 per 1/2 kilo (17.25 cents per pound) live weight, and the price for fats from other hogs is R.M. 0.70 to 0.80 per 1/2 kilo (24.15 to 27.60 cents per pound). Neutral lard costs R.M. 2.20 to R.M. 2.65 per kilogram (37.94 to 45.71 cents per pound) to produce, depending on the extraction method and the efficiency of the manufacturers. Oleomargarine makers pay R.M. 0.86 per kilo (14.83 cents per pound)f.o.b. factory, and the government subsidy amounts to R.M. 1.34 to 1.79 per kilo (23.11 to 30.87 cents per pound). The permitted maximum price for neutral lard is R.M. 2.70 per kilo (46.57 cents per pound), which includes a fixed profit of R.M. 20 per metric ton ($6.90 per short ton) allowed to the neutral lard manufacturer.

Neutral lard production

Twenty-one manufacturers have been licensed to make neutral lard. The total plant capacity is 11,000 to 12,100 short tons monthly, but only 4,900 short tons can be made because oleomargarine manufacture has been restricted



to 397,000 short tons annually. Neutral lard destined for use in oleomargarine must be without taste or odor, and consequently free from fatty acids and proteins. The Hartman vacuum kettle process is the most extensively used rendering method. Some plants are equipped to use benzine and other chemicals in extracting fat not removed in the rendering process. The cost of these processes is the greatest limiting factor in the production and use of neutral lard.

The commercial manufacture of neutral lard in Germany is relatively new. The extraction methods in use have been known for years, but their use has been made possible only by the subsidy. Since uniform extraction methods are not followed in all plants, there is considerable variation in the quality secured. Some of the plants have well equipped research laboratories and well trained staffs. Recently one manufacturer announced that a process had been found for hardening neutral lard so that it could be handled in brick form. Heretofore, German lard yields have been relatively low, averaging about 6 percent of the carcass weight. Under neutral lard manufacture, practically all of the fat on the carcass is put through the rendering process, and the average yield is about 45 percent.

Hog type problem

In neutral lard production the pork becomes a by-product and presents another problem. The demand is for small cuts, the sort that can be obtained from well finished 225-250-pound hogs, and the demand for pork can be well satisfied with supplies obtained from hogs other than those used for neutral lard. The neutral lard manufacturer who buys hogs has the surplus pork to sell, and a number of new specialties, including corned pork, have been prepared in an effort to dispose of the surplus.

The pork from hogs in excess of 300 pounds is not as desirable as that from lighter weight hogs, and for that reason the neutral lard manufacturers are not entirely in accord with the Government on the type and weight of hog for which the supporting prices are paid. The neutral lard manufacturers want an excessively fat hog with small pork cuts and little bone. German hogs are meat hogs and even when carrying a high finish have a high proportion of lean meat. The ideal hog for the neutral lard manufacturers would be the Hungarian hog, because with the bones removed the whole carcass could be rendered and a lard yield of 75 percent of 80 percent obtained. The only by-product would be the meat meal, and with the present protein feed situation in Germany little difficulty would be met in disposing of this product.

The Government desires that supporting prices be paid for fat hogs weighing over 300 pounds. The reason for this desire are that present heavy supplies of feed can be used up more rapidly by feeding to heavier weights, marketings of the surplus hogs will be delayed and less surplus pork will be produced. The higher production costs incident to feeding to heavier weights apparently are not considered.

Effect of the neutral lard program

The neutral lard program has been in operation about 7 months and it is not possible at this time to draw definite conclusions as to its success or of its probable outcome. Much will depend upon developments in the economic situation in Germany. So far the scheme has been successful in raising hog prices for a time, but larger hog numbers have depressed prices to around last year's levels. The supporting prices for class A1 hogs and for fats raised the price of all hogs, but the price spread between classes has widened as has been the case on other occasions when prices advanced. The higher prices for fats have made it unnecessary for port prices to advance proportionately with hog prices and pork prices are now lower than fat prices, the reverse of the situation prior to the adoption of the scheme.

The higher prices have given hog producers a reasonable profit and a higher return for feeds consumed by hogs. Producers have not reacted to the fat propaganda and the slogan "Not More Hogs, but More Fat Hogs" as was expected and desired. The average weight of market hogs has increased, but farmers, encouraged by the higher prices, have also increased production. A heavy run of marketings is under way. The Government, in anticipation of the heavy run of hogs and decline in prices, has issued a decree requiring neutral lard producers to pay supporting prices for 300-pound hogs and such other hogs as the Government may direct.

A production rate for neutral lard of 4,900 short tons per month provides a market for 75,000 300-pound fat hogs or their equivalent in fat (56,000 double centners = 6,172 short tons) each month. It is questionable if ordinary lard production has increased. The high price paid for fats for neutral lard production would tend to shift fats to that market, and there is no surplus of fats on German markets. Neutral lard production has not reached a point where it supplies any appreciable part of the deficit caused by restricted imports. Under present conditions neutral lard simply replaces a part of the imported fats formerly used in margarine manufacture. The decree and probable heavy marketings of hogs suggest that increased neutral lard manufacture will be necessary. The new decree provides that neutral lard manufactures must keep stocks equal to one-fourth of their production of the previous month.

The maintenance of the present level of neutral lard production assumes that (1) sufficient funds will be available to continue the subsidy, (2) sufficient feed will be produced or imported to fatten the required number of hogs, and (3) some means will be found for disposing of the surplus pork without depressing pork prices and necessitating a rise in the price of fats. An increase in neutral lard production would assume the above to an even greater extent. The greatest limiting factor in the production and use of neutral lard is its cost. Raw materials account for 75 percent to 90 percent of the cost and a reduction in processing charges would affect the total cost to only a small extent. Consequently it is unlikely that a reduction can be made which will permit the use of neutral lard as lard. The whole situation in neutral lard contains many conflicting factors, most of which come back to the problem



of supporting a hog population sufficiently large to provide the quantities of fat regarded in some official quarters as being necessary. Hog numbers at present are at record levels, and it has been possible to maintain them because of unusually large potato and grain crops, especially the former. Normal crops might not supply sufficient feed for present numbers, without regard to furnishing feed for producing excessively fat hogs.

Importance of the hog industry in Germany

The hog industry is the source of approximately 18 percent of Germany's agricultural income, and in this respect ranks second only to the dairy industry in German agriculture. Germany produces more hogs and consumes more pork than any other country in Europe. Hogs are the most efficient means of converting available food supplies into meats and fats and the hog industry has grown and developed with the demand for those commodities. Per capita meat consumption in Germany is high, and the people have shown a marked preference for pork, the per capita consumption of the latter being the highest for any country. Seasonal consumption of pork necessarily follows marketings closely, since refrigeration and cold storage facilities in Gemany are not sufficient to permit the carrying of stocks from periods of heavy marketings to periods of light marketings. Marketings are greatest during the fall, winter and early spring months, and the weather in Germany during that period is conducive to pork consumption.

Hog production, feed supplies and types of farming

Hog production over the whole of Germany has not been tied up with any one feed crop or phase of agriculture, as has been the case between corn and hogs in the United States, and dairying and hogs in Denmark. The relationship between hogs and feed supplies or types of farming differs in the different hog producing sections. Demand for meats and fats and nearness to markets has had much to do with the development of the industry in the different sections. Imported feeds have been an important factor in hog production in the past, but with the tariffs and other restrictions on imports of feedstuffs the situation has changed and domestic feed supplies arenow the determining factor in German hog production.

Agriculture in the northwest provinces of Germany is more intensive and farming practices are more improved than in other sections. Proximity to the ports of Hamburg and Bremen with the consequent low transportation costs formerly permitted the feeding of cheap imported grains in that section, and the hog and dairy industries developed on that basis. Skim-milk along with imported fish meal, meat meal and oil cake made up the protein part of the ration. Feeder pig production was highly developed and approximately 70 percent of the hog fattening operations were in the hands of commercial feeders. Grain tariffs and fixed grain prices have changed this situation materially. Commercial feeders have greatly reduced their operations and such imported grain as is fed is obtained at a reduced rate through the certificates issued on exports of domestic grain. Most of the hog feeding in northwest Germany at present is done by farmers who produce their own potatoes and grain and use skim-milk and imported fish meal for protein supplements. Northwest Germany was formerly the

most important producing section, but production has shown a declining tendency for several years and appears to be shifting to eastern Germany where hogs are used to convert surplus potatoes and home produced grains into meats and fats. The market for northwest Germany's surplus hogs is in the Rhineland, and a meat type hog with considerable fat is produced to meet the demands of the industrial workers. In general hogs from northwest Germany are the best to be found on German markets.

Eastern Germany, including eastern Prussia, has, during the last decade, replaced northwest Germany as the most important hog producing section. In this area farming operations are on a large scale with potatoes and grain the principal crops. Expansion in the hog industry has come with increased potato production. Surplus hogs from eastern Germany find a market in Berlin and in central and southern industrial sections where a well finished meat type hog is in demand. Hogs from eastern Germany are not as favorably regarded on the markets as hogs from northwestern Germany.

Southern and western Germany are important pork consuming but not important hog producing sections. In the industrial areas feeds are scarce, but during the depression increasing numbers of industrial workers have taken to feeding one or more hogs on garbage. In the agricultural areas farms are small and farmers produce largely for their own requirements. Hogs marketed in these sections come chiefly from north and east Germany. Well fattened meat hogs are in demand except in southern Bavaria where a lean hog with little fat is wanted. The latter demand is met by Bavarian production.

It is unofficially estimated that hogs consume approximately one half, horses one fourth, and cattle and poultry one fourth of the concentrates a/ available for livestock feeding in Germany. During the postwar period b/ potatoes have been of increasing importance in hog feeding operations and have replaced much of the home produced and cheap imported grains formerly used for that purpose. Before the war the feeds given to hogs in Germany were in the proportion of grain 60 percent - potatoes 40 percent. Since 1928 potatoes have made up 50 percent of the feeds given to hogs and this percentage has likely been further increased by grain tariffs, fixed rye prices, and the bumper potato crops of the last two years. Hog production has shown a greater increase in potato feeding areas than in grain feeding areas, and the increase in hog numbers in 1933 in the face of the low prices ruling during the first half of that year emphasizes the relationship between hogs and potatoes, particularly in the potato feeding areas. German production of grain has increased steadily since the war, but the increase has resulted in decreased imports of bread grains rather than increased supplies for livestock feeding. With present grain and hog prices, grain feed hogs are not profitable, and under existing conditions the maintenance or expansion of German hog production is more dependent on domestic potato production than on grain supplies.

a/ Including potatoes converted to a grain basis, i.e. 4 lbs. potatoes = 1 lb. grain. b/ In this report pre-war hog production is given little consideration. It is not comparable with post-war production because Germany lost important hog producing areas to Poland and Denmark under the peace treaties.



Types and breeds of hogs

Prior to the war German demand in general was for a hog of the short fat back type. Since the war, increased world production of vegetable and marine oils with the resulting low prices of fats has permitted imports to be used more extensively in supplying German fat requirements. Per capita consumption of meat and fats has increased. German hog type has changed to more of a meat hog type, but German markets still demand a much fatter hog than is wanted on English and Danish markets. Three hog types, small, medium and large, are produced at present. The small type approaches but is not as extreme as the hot blooded fatback formerly produced in the United States. The small type is early maturing and can be fattened at about 200 pounds live weight. The medium type, developed as a result of the conditions previously mentioned, is an excellent meat type, fattening at 225-250 pounds live weight. Medium type hogs have a high percentage of lean meat, with unusually good ham back and loin development. When not fattened excessively this type would make good Wiltshire sides. The large type is late maturing, fattening at weights in excess of 250 pounds and reaching the best development at 300 pounds and up. While this type is big and tends to coarseness, it is heavily muscled, and by no means as extreme as was the "Giantoss" type in the United States. These three types are to be found in all breeds, with the medium type predominating. Practically all of the hogs in Germany are white.

The development of the pure breeds of hogs has paralleled the development of the hog industry. Breeders and livestock shows have not been carried away by fads and fancies, and pure bred hog production is a business, not a hobby. The aim has been to produce an animal which would impart to its offspring characteristics of commercial value, and little attention has been given to the perfection of nonessential characteristics. The aim has been attained to a high degree. It is expected that legislation will soon be passed which will require that any boar used in Germany must be a pure bred of one of the recognized breeds. Pedigrees go back about 50 years and since about 1926 records of performance have been kept which are similar to those kept by Swedish breeders. It is now possible for pedigrees to show fecundity and milk producing ability of a particular strain for 3 or 4 generations.

There are several breeds of hogs in Germany, but only two are of importance. The Edelschwein, which is the English Yorkshire, improved and adapted to German conditions, and the Veredelte Landschwein, which is a native hog improved by crossing and selection, predominate. These breeds accounted for 25.6 percent and 67.3 percent respectively of all the purebred hogs recorded in Germany up to January 1, 1930. German hog producers recognize the set of the ears as the principal difference in the two breeds. The Edelschwein is somewhat shorter in conformation, has more quality, and the texture of the meat is more desirable. The Veredelte Landschwein is slightly longer in body, more prolific and hardier than the Edelschwein. Experiment stations have found no significant differences in the two breeds with respect to consumption and utilization of feed, rate of gain, or dressing percent. The influence of these two breeds is evident in 98 percent of the hogs marketed in Germany.

Feeding practices

The German hog industry is a very intensive one and production is largely a dry lot proposition. About 66 percent of the hogs are owned by farmers whose holdings are less than 20 hectares (50 acres) and such pasture land as is available is needed for cattle. Sows are pastured only to a limited extent, and throughout Germany fattening is done on concrete and under cover. In spite of the crowding that results from this method of handling the hogs, diseases are relatively few. Disinfectants seem to be used very little, and the freedom from disease may be attributed to the fact that barns, lots, feed troughs, etc., are kept unusually clean.

Feeds differ in the several producing sections, but due to the work of the experiment stations and the highly developed extension service, along with the progressiveness of German livestock producers, the same general principles of feeding are followed. Home produced protein feeds are more suitable for cattle than for hog feeding, and nitrogenous concentrates are the greatest problem in German feeding operations. Approximately half of the protein supplements have had to be imported. In spite of the present restricted supplies and consequent high costs of these feeds, hog producers, being fully aware of their importance, try to supply them so far as is practical. The use of skim-milk is largely confined to dairy farmers. Meat and oil meal are used when prices permit, but imported fish meal is the supplement most extensively used. The opposition to feeding fish meal which prevails in certain European countries does not exist in Germany. German experiment stations have thoroughly investigated the matter and have found that so long as the meal does not supply over 12 percent of the fat content of the hog ration there are no objections to feeding fish meal.

Potatoes for hog feeding are either siloed or cooked. The use of silos for storing potatoes is increasing, with pit silos predominating. Siloing potatoes provides a means of supplying potatoes for summer feeding which may change the seasonal trend in hog marketings. Potatoes stored in this manner are washed, steamed, tramped into the silo and covered with straw and soil. Spoilage in potato silage is practically nil.

Representative rations for fattening which are recommended by experiment stations and used with certain variations by feeders are:

Ration:

300 grams (0.66 pound, or 11 ounces) fish meal per head per day, Potatoes ad lib.

Ration:

1 kilogram (2.2 pounds) of a mixture (70 percent rye, 10 percent fish meal, 20 percent meat meal by weight) per head per day.
Potatoes ad lib.

Feed requirements per pound gain are comparable to those in the United States and other hog producing countries. It is generally accepted that about 5 kilograms (11 pounds) - grain basis - of a balanced ration are required for



1 kilogram (2.2 pounds) gain. The hog-feed ratio is determined on that basis, an extra pound being required to cover overheads, and another pound for transportation costs. The hog-feed ratio is accordingly called 1:6 at the farm and 1:7 at the market.

Cyclical and seasonal production trends

The hog production cycle in Germany, according to a leading German authority, is of about 3 1/2 to 4 years' duration and has been subject to the same influences which affect the hog cycle in other important hog producing countries. Between 1929 and 1933, the depression and consequent low purchasing power exerted an influence on the price level which was not in evidence prior to that time. At the beginning of this period, hog prices were forced much lower than the market supply situation alone justified. Market receipts declined and supplies piled up on the farms. In spite of this situation production increased due to bumper potato crops. The cyclical trend has continued, but the fluctuations have been less pronounced. Seasonal production is similar to that in the United States, a two-litter system being followed, with peak farrowing in February/March and September/October. The seasonal trend in marketings shows the influence of the domestic food supply situation. Market receipts increase in the fall after crops are harvested, reaching a peak in winter and declining gradually in the spring and summer as food supplies become more or less exhausted. The average weight of market hogs tends to show a similar influence.

Marketing methods

The marketing system in Germany is similar to the central market system followed in the United States. The markets are owned by the municipalities in which they are located. Hogs are consigned by producers or local buyers to commission agents at the markets, where they are sold for the consignees account to butchers. Sales by producers to local buyers have declined during the depression and more producers have sent their hogs to the markets themselves. Yardage and other marketing fees are not uniform throughout Germany.

The cooperative movement in Germany is of farmer origin and has been confined to marketing. The cooperative marketing organization is national in scope and functions along the same lines as cooperative livestock commission firms in the United States. The co-op has given unusually good service to the small producer. Assembly stations are located in the producing areas, and shipments are directed to the different markets by the central office in Berlin in accordance with the supply and demand on those markets. The co-op has grown, especially during the depression, and handles about 60 percent of the hogs consigned to the 36 markets on which the co-op maintains its own selling organization or also operates through established commission firms.

Hogs are classified in the markets in accordance with weight. Other qualifications and the use made of the hog have no part in determining the classification. Consequently, quotations show a wide spread and do not give producers a good guide to actual market conditions. Measures have been taken to correct this. A new system of determining and reporting prices has been adopted involving

the division of Class A hogs (weighing over 300 pounds) into Class A1, fat hogs, for which the neutral lard producers pay supporting prices, and Class A2, meat hogs, which sell at competitive market prices.

Until recently, no price fixing measures were in operation on German markets and supply and demand determined the day's price on any market. Since the neutral lard scheme came into operation, neutral lard producers have at the request of the Government paid supporting prices for Class A1 hogs.

Slaughter, processing, health inspection

In addition to the market facilities the municipalities also maintain abattoirs adjacent to the markets. These are used by local butchers for slaughtering and dressing, further processing being done in the individual's shop. Wholesale butchers in the larger towns usually have their own plants located near the market. The abattoirs and plants have modern equipment and considering the small scale on which killing operations are conducted a high degree of efficiency is obtained.

Most of the hog carcass goes into the fresh meat trade. Retailers who do not do their own killing obtain supplies on the wholesale meat markets, wholesale cuts being made in accordance with the demands of the retail trade. A great variety of prepared meats and specialties, and innumerable kinds of wurst are made by both wholesalers and retailers.

The average yield of lard from German hogs is about 6 percent of the carcass weight. This relatively low yield, in spite of the high finish carried by German market hogs, is due to the fact that a large part of the fat goes into the fresh meat trade and another appreciable part is used in wurst manufacture. Every wholesale and retail butcher does some rendering - mostly open kettle - and as a result German lard lacks uniformity and regular supplies cannot be obtained in quantity. Specialized lard cookers blend German lard with American lard and add meat scrap, onions, thyme, apples, etc., in accordance with the demands of their customers.

A rigid health and sanitary inspection is required by German law and meat cannot be sold in Germany without the stamp of the health inspection. Qualified veterinarians in the employ of the municipalities inspect the carcasses, glands and internal organs - particular attention is paid to the examination for trichinae - and pass those carcasses or parts of carcasses which are fit for human food.

The hog industry in Germany has developed along conservative lines. Hogs have been used to convert available food supplies into meats and fats for supplying so far as possible the meat requirements of the people. Hog type has changed with conditions, but demand for meats and fats has never been lost sight of in the changes which have been made.



Statistical appendix

TABLE I - GERMANY: Per capita consumption of pork, including lard, 1925 and 1931 to 1933

| Year | Domestic pork & pork products | Imported pork | Imported hog fat and offal | Total pork and pork products |
|---|---|---|---|---|
| | Pounds | Pounds | Pounds | Pounds |
| 1925 ..... | 54.16 | 3.11 | 3.75 | 61.02 |
| 1931 ..... | 72.51 | .68 | 2.89 | 76.08 |
| 1932 ..... | 66.89 | 1.19 | 3.70 | 71.78 |
| 1933 ..... | 69.16 | .92 | 2.56 | 72.64 |

Meat Specialist H. E. Reed.

TABLE II - GERMANY: Meat consumption by varieties, in percent of total, 1913, 1925, 1930 to 1933

| Type of meat | 1913 | 1925 | 1930 | 1931 | 1932 | 1933 |
|---|---|---|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent | Percent |
| Beef ..... | 28.4 | 32.3 | 29.2 | 26.7 | 28.3 | 27.2 |
| Veal ..... | 5.1 | 6.3 | 5.8 | 5.8 | 6.2 | 5.9 |
| Pork ..... | 62.9 | 57.8 | 62.0 | 65.0 | 63.1 | 64.3 |
| Mutton ..... | 1.8 | 2.0 | 1.4 | 1.3 | 1.3 | 1.3 |
| Goat & horse .. | 1.8 | 1.7 | 1.6 | 1.2 | 1.1 | 1.3 |

Meat Specialist H. E. Reed.

TABLE III - GERMANY: Market classes of hogs, 1934

| Class | Description | Class | Description |
|---|---|---|---|
| A1 ..... | Fat hogs over 300 lb. | D .... | Weight 160 - 200 lbs. |
| A2 ..... | Full meat hogs over 300 lb | E .... | Weight 120 - 160 lbs. |
| B ..... | Weight 240 - 300 lbs. | F .... | Weight up to 120 lbs. |
| C ..... | Weight 200 - 240 lbs. | G .... | Sows |

Official sources.

TABLE IV - GERMANY: Marketings of hogs at 11 principal markets by months and by weight classes a/ in percent to total marketings, 1931 to 1934

| Month | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|
| | Classes A & B | Classes C & D | Classes A & B | Classes C & D | Classes A & B | Classes C & D | Classes A & B | Classes C & D |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| January ..... | 15.6 | 74.3 | 12.3 | 75.7 | 17.9 | 73.8 | 34.5 | 58.7 |
| February ..... | 12.6 | 77.2 | 11.3 | 76.3 | 18.1 | 73.3 | 32.4 | 60.8 |
| March ..... | 11.2 | 78.2 | 10.6 | 76.5 | 19.9 | 72.3 | 29.2 | 64.3 |
| April ..... | 11.6 | 77.1 | 10.5 | 77.2 | 20.8 | 71.6 | | |
| May ..... | 12.4 | 75.9 | 11.5 | 77.7 | 24.2 | 69.7 | | |
| June ..... | 13.0 | 75.4 | 14.2 | 75.3 | 25.3 | 69.5 | | |
| July ..... | 14.1 | 73.9 | 14.9 | 75.4 | 27.9 | 67.0 | | |
| August ..... | 14.2 | 73.3 | 18.0 | 73.7 | 30.8 | 64.3 | | |
| September .... | 11.8 | 75.3 | 16.3 | 74.1 | 27.2 | 66.9 | | |
| October ..... | 10.8 | 76.7 | 16.7 | 75.0 | 27.9 | 65.8 | | |
| November ..... | 11.3 | 76.9 | 17.3 | 74.5 | 30.0 | 63.5 | | |
| December ..... | 12.0 | 75.6 | 16.1 | 75.7 | 28.0 | 64.4 | | |
| Average .... | 12.4 | 75.9 | 13.9 | 75.7 | 24.9 | 68.5 | | |

Official sources. a/ Classes A and B weigh over 240 pounds. Classes C and D weigh between 160 and 240 pounds.

TABLE V - GERMANY: Average monthly inspected hog slaughter five years, 1929-1933

| Month | Average slaughter | Percent of 12-months' average | Month | Average slaughter | Percent of 12-months' average |
|---|---|---|---|---|---|
| | Number | Percent | | Number | Percent |
| January ..... | 1,674,773 | 108.5 | July ..... | 1,329,175 | 86.0 |
| February .... | 1,575,549 | 102.0 | August ..... | 1,333,713 | 86.2 |
| March ..... | 1,687,248 | 109.2 | September .. | 1,394,837 | 90.3 |
| April ..... | 1,422,838 | 92.2 | October .... | 1,592,443 | 103.0 |
| May ..... | 1,453,134 | 94.0 | November ... | 1,777,286 | 115.0 |
| June ..... | 1,357,366 | 87.8 | December ... | 1,996,038 | 127.3 |
| | | | Average.. | 1,546,950 | |

Official sources.



TABLE VI - GERMANY: Hog numbers on December 1, and potato and grain (barley and rye) production, by homogeneous regions, expressed in percent of 10-year average, 1924-1933

| Region | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| East | | | | | | | | | | |
| Hog production | 80 | 78 | 94 | 106 | 91 | 89 | 112 | 117 | 114 | 121 |
| Potato " | 95 | 106 | 74 | 91 | 100 | 95 | 116 | 106 | 109 | 108 |
| Grain " | 81 | 111 | 80 | 92 | 114 | 107 | 98 | 91 | 109 | 118 |
| Northwest | | | | | | | | | | |
| Hog production | 74 | 73 | 92 | 117 | 105 | 106 | 114 | 110 | 103 | 107 |
| Potato " | 84 | 97 | 79 | 82 | 117 | 101 | 110 | 100 | 119 | 110 |
| Grain " | 75 | 96 | 84 | 85 | 114 | 110 | 107 | 93 | 118 | 119 |
| West | | | | | | | | | | |
| Hog Production | 88 | 79 | 91 | 108 | 94 | 92 | 113 | 116 | 108 | 112 |
| Potato " | 77 | 107 | 80 | 88 | 97 | 101 | 114 | 110 | 119 | 105 |
| Grain " | 67 | 99 | 98 | 99 | 117 | 112 | 99 | 92 | 112 | 114 |
| South | | | | | | | | | | |
| Hog production | 81 | 79 | 95 | 104 | 93 | 94 | 115 | 113 | 111 | 116 |
| Potato " | 74 | 101 | 60 | 100 | 97 | 115 | 116 | 110 | 121 | 106 |
| Grain " | 67 | 92 | 84 | 95 | 116 | 112 | 104 | 100 | 114 | 116 |
| Other | | | | | | | | | | |
| Hog production | 90 | 82 | 91 | 109 | 94 | 89 | 108 | 115 | 110 | 114 |
| Potato " | 100 | 93 | 77 | 95 | 97 | 84 | 116 | 110 | 120 | 109 |
| Grain " | 88 | 96 | 99 | 91 | 109 | 107 | 99 | 93 | 106 | 113 |
| Total | | | | | | | | | | |
| Hog production | 81 | 77 | 93 | 109 | 96 | 95 | 112 | 114 | 109 | 114 |
| Potato " | 88 | 102 | 73 | 92 | 101 | 100 | 115 | 107 | 115 | 108 |
| Grain " | 78 | 102 | 85 | 92 | 114 | 108 | 101 | 93 | 112 | 117 |
| Net Feed Grain imports | 67 | 79 | 115 | 228 | 150 | 96 | 93 | 65 | 86 | 22 |
| Imports of fish meal | 32 | 54 | 98 | 136 | 112 | 141 | 124 | 89 | 94 | 129 |

Official sources.

TABLE VII - GERMANY: Estimated feed supplies and pork production, 1924-25 to 1933-34 a/

| Season | Domestic feed production b/ c/ | Net feed imports d/ | Total feed supplies c/ | Estimated feedstuffs fed to hogs | Estimated pork production |
|---|---|---|---|---|---|
| | 1,000 short tons | 1,000 short tons | 1,000 short tons | 1,000 short tons | Short tons live weight |
| 1924-25 ..... | 19,889 | 1,888 | 21,777 | 9,397 | 20,556 |
| 1925-26 ..... | 23,837 | 2,103 | 25,940 | 12,649 | 21,256 |
| 1926-27 ..... | 18,543 | 5,208 | 23,751 | 11,767 | 24,323 |
| 1927-28 ..... | 21,430 | 4,962 | 26,392 | 13,724 | 29,333 |
| 1928-29 ..... | 24,459 | 2,652 | 27,111 | 12,897 | 27,916 |
| 1929-30 ..... | 23,541 | 3,308 | 26,849 | 13,117 | 26,572 |
| 1930-31 ..... | 24,602 | 1,342 | 25,944 | 13,751 | 29,679 |
| 1931-32 ..... | 22,782 | 2,013 | 24,795 | 12,318 | 29,371 |
| 1932-33 ..... | 25,714 | 742 | 26,456 | 12,952 | 27,478 |
| 1933-34 ..... | 25,590 | | | | |

a/ According to unpublished studies of Dr. Arthur Hanau. b/ Rye, barley and potatoes. c/ Crop production for the seasons 1924-25 to 1927-28 has been adjusted upward, as official estimates are believed to have been too low. Potatoes are expressed in grain equivalents at the ratio of 4 units potatoes=1 unit grain. d/ Rye, barley, corn and bran.

TABLE VIII - GERMANY: Imports of lard by countries, average 1909-1913, annual 1931-1933.

| Commodity and county from which imported | Year ended December 31 | | | | Percent of total | | | |
|---|---|---|---|---|---|---|---|---|
| | Av. 1909 to 1913 | 1931 | 1932 | 1933 | Av.1909 to 1913 | 1931 | 1932 | 1933 |
| | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | Per-cent | Per-cent | Per-cent | Per-cent |
| United States ... | 192,184 | 125,766 | 173,459 | 124,783 | 94.3 | 68.6 | 73.1 | 76.4 |
| Denmark ..... | 5,981 | 45,904 | 51,277 | 32,907 | 2.9 | 25.0 | 21.6 | 20.1 |
| Netherlands ..... | 2,481 | 5,855 | 9,597 | 3,599 | 1.2 | 3.2 | 4.0 | 2.2 |
| Other countries.. | 3,150 | 5,929 | 3,127 | 2,171 | 1.6 | 3.2 | 1.3 | 1.3 |
| Total ..... | 203,796 | 183,454 | 237,460 | 163,460 | 100.0 | 100.0 | 100.0 | 100.0 |

Foreign Agricultural Service. Compiled from International Trade in Meats and Animal Fats, average 1909-1913; Der Auswartige Handel Deutschlands, 1929; Monatliche Nachweise uber den Auswartigen Handel Deutschlands, December issue, 1930 to 1933.



TABLE IX - UNITED STATES: Reports of lard by countries, average 1909-10 to 1913-14, annual 1931-1933

| Country to which exported | Year ended June 30 | Year ended Dec. 31 | | | Percent of total | | | |
|---|---|---|---|---|---|---|---|---|
| | Av.1909-10 to 1913-14 | 1931 | 1932 | 1933 | Av.1909-10 to 1913-14 | 1931 | 1932 | 1933 |
| | 1,000 pounds | 1,000 pounds | 1,000 pounds | 1,000 pounds | Per-cent | Per-cent | Per-cent | Per-cent |
| United Kingdom | 169,176 | 250,876 | 236,308 | 295,652 | 35.7 | 44.1 | 43.3 | 51.1 |
| Germany ..... | 142,311 | 132,977 | 157,942 | 136,181 | 30.0 | 23.4 | 28.9 | 21.8 |
| Netherlands .. | 36,501 | 27,949 | 37,656 | 38,753 | 7.7 | 4.9 | 6.9 | 6.7 |
| Belgium ..... | 17,076 | 7,528 | 6,666 | 15,618 | 3.6 | 1.3 | 1.2 | 2.7 |
| Italy ..... | 4,656 | 7,136 | 6,790 | 7,433 | 1.0 | 1.3 | 1.2 | 1.3 |
| Other Europe.. | 20,650 | 8,792 | 9,326 | 16,117 | 4.3 | 1.5 | 1.7 | 2.7 |
| Total Europe | 390,370 | 435,258 | 454,688 | 499,754 | 82.3 | 76.5 | 83.2 | 86.3 |
| Canada ..... | 10,182 | 8,588 | 5,744 | 4,882 | 2.1 | 1.5 | 1.1 | .8 |
| Cuba ..... | 41,379 | 44,913 | 22,098 | 10,908 | 8.7 | 7.9 | 4.0 | 1.9 |
| Mexico ..... | 7,001 | 46,142 | 38,706 | 36,169 | 1.5 | 8.1 | 7.1 | 6.2 |
| Other countries | 25,423 | 33,807 | 24,966 | 27,419 | 5.4 | 6.0 | 4.6 | 4.8 |
| Total ..... | 474,355 | 568,708 | 546,202 | 579,132 | 100.0 | 100.0 | 100.0 | 100.0 |

Foreign Agricultural Service. Compiled from Foreign Commerce and Navigation of the United States and official records of the Bureau of Foreign and Domestic Commerce.

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